

Form PTO-1449 U.S. Department of Commerce Patent & Trademark Office				Atty. Docket No. 43062.0217		Serial No. 10/632,048	
INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)				Applicant Suranjan PANIGRAHI et al.			
				Filing Date July 31, 2003		Group Unknown 2876	
U.S. PATENT DOCUMENTS							
Examiner Initial		Document Number	Date	Name	Class	Sub- Class	Filing Date (if appropriate)
Dee ↓ Dee	AA	5,751,421	05/12/98	Wright et al.	356	328	
	AB	5,991,025	11/23/99	Wright et al.	356	328	
	AC	5,898,792	04/27/99	Oste et al.	382	110	
	AD	4,540,282	09/10/85	Landa et al.	356	328	
	AE	3,597,616	08/03/71	Brunton et al.	250	83.3	
	AF	4,040,747	08/09/77	Webster	356	188	
	AG	4,253,766	03/03/81	Funk	356	418	
	AH	4,260,262	04/07/81	Webster	356	418	
	AI	4,463,261	07/31/84	Bowman	250	339	
	AJ	4,560,275	12/24/85	Goetz	356	326	
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Dee ↓ Dee	AK	Randy Nouis, Predicting the Ninety-Fifth Percentile Dust Environment for Passenger Vehicles in the Continental United States, March 1-5, 1993, pp. 1-11					
	AL	C. S. Chang et al., Grain Flow Regulator for Dust Emission Control, November - December, 1985, pp. 2059-2062					
	AM	Joseph A. Borgia et al., Pressure Drop and Flow Characteristics for a Heavy-Duty Air Filter During Dust Loading, November 16-19, 1987, pp. 1-15					
	AN	Charles O. Reinhart et al., Measurement of Engine Air Cleaner Efficiency Using Airborne Particle Size Analysis, September 12-15, 1983, pp. 1-8					
Dee	AO	Philip C. Williams, et al.; Determination of Protein and Moisture in Wheat and Barley by Near-Infrared Transmission, 1985, pp. 239-244					
EXAMINER Deane Shu Liu				DATE CONSIDERED 2/5/04			
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P	AA	4,806,764	02/21/89	Satake	250	339	
	AB	4,925,305	05/15/90	Erickson	356	300	
	AC	4,997,280	03/05/91	Norris	356	308	
	AD	5,132,538	07/21/92	Norris	250	339	
	AE	5,239,180	08/24/93	Clarke	250	339	
	AF	5,241,178	08/31/93	Shields	250	339	
	AG	5,308,981	05/03/94	Pertin	250	339.01	
	AH	5,406,084	04/11/95	Tobler et al.	250	339.01	
V	AI	5,517,302	05/14/96	Stearns et al.	356	326	
P	AJ	5,327,708	07/12/94	Gerrish	56	1	
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P	AK	K. H. Norris et al., Optimization of Mathematical Treatments of Raw Near-Infrared Signal in the Measurement of Protein in Hard Red Spring Wheat. I. Influence of Particle Size, 1984, pp. 158-165					
	AL	Renfu Lu et al., Determination of Firmness and Sugar Content of Apples Using Near-Infrared Diffuse Reflectance, 24 pages					
	AM	F. De Lene Mirouze et al., Quantitative Analysis of Glucose Syrups by ATR/FT-IR Spectroscopy, 1993, pp 1187-1191					
	AN	Véronique Bellon-Maurel et al., Quantitative Analysis of Individual Sugars during Starch Hydrolysis by FT-IR/ATR Spectrometry. Part I: Multivariate Calibration Study – Repeatability and Reproducibility, 1995, pp 556-562					
V	AO	Suranjan Panigrahi, et al., On-The-Go Sensing Techniques for Sugar Determination of Sugarbeet in the Field, pp176-178					
P	AP	E. K. Kemsley et al., Quantitative analysis of sugar solutions using infrared spectroscopy, 1992, pp299-304					
EXAMINER <div style="font-family: cursive; font-size: 1.2em;">William J. Lu</div>				DATE CONSIDERED <div style="font-size: 1.2em;">2/5/04</div>			
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Dee	AA	4,037,970	07/26/77	Webster et al.	356 188	
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Dee	AB	Dr. Daniel S. Humburg et al., Spectral Analysis of Sugar Beet Canopy for Spatial and Temporal Quantification of Sugar Content, Quality, and Disease, 12/14/99, pp. 1-6				
	AC	Dave Berard, Protein Monitor on the Market, 07/97, pp. 18-19				
	AD	Carol R. Dumas, New Milestone Monitor Analyzes Grain Quality On The Go, 02/14/97, pp. 1-4				
	AE	Jerry Workman, Jr., A Compact Reference for Practitioners, pp. Contents and 423-435				
	AF	Food Processing Automation, 05/06/90, pp. Table of Contents and 103-114				
	AG	Donald A. Burns, Handbook of Near-Infrared Analysis, pp. Contents 53-106				
	AH	P. C. Williams et al., Effect of Mutual Interactions on the Estimation of Protein and Moisture in Wheat, 11/24/82				
	AI	Russell Tkachuk, Ph.D., Protein Analysis of Whole Wheat Kernels by Near Infrared Reflectance ^{1,2}				
	AJ	G. Downey et al., Protein Testing of Wheat by Near Infrared Reflectance				
	AK	Frédéric Cadet et al., Direct Spectroscopic Sucrose Determination of Raw Sugar Cane Juices, 1997, pp 166-171				
	AL	Gianluigi Marchetti, Application of a NIR on-line automatic analyzer system in a beet sugar factory, 1990, pp 210-215				
	AM	Nils Berding et al., Crop Ecology, Production & Management, 1991, pp 1017-1023				
	AN	Nils Berding et al., Near Infrared Reflectance Spectroscopy for Analysis of Sugarcane from Clonal Evaluation Trials: II. Expressed Juice, 1991, pp 1024-1028				
Dee	AO	Roberto Giangiacomo et al., Near Infrared Spectrophotometric Determination of Individual Sugars in Aqueous Mixtures, 1986, pp 679-683				
	AP					
EXAMINER W. Dineen J. H. Lee			DATE CONSIDERED 2/5/04			
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	AG						
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<div style="font-size: 1.5em; margin-top: 10px;">R</div>	AH	Stephen R. Delwiche et al., Classification of Hard Red Wheat by Near-Infrared Diffuse Reflectance Spectroscopy, 1993, pp. 29-35					
	AI	Huaipu Song et al., Neural Network Classification of Wheat Using Single Kernel Near-Infrared Transmittance Spectra, October 1995, pp. 2927-2934					
	AJ	Stephen R. Delwiche, Single Wheat Kernel Analysis by Near-Infrared Transmittance: Protein Content, 1995, pp. 11-16					
	AK	Philip C. Williams, Application of Near Infrared Reflectance Spectroscopy to Analysis of Cereal Grains and Oilseeds, 1975, pp. 561-576					
	AL	Near-Infrared Reflectance Method for Protein Determination, pp. 1-2					
	AM	Near-Infrared Method for Protein Content in Whole-Grain Wheat, pp. 1-3					
	AN	Innovative Protein Monitoring, pp. 1-2					
<div style="font-size: 1.5em; margin-top: 10px;">V</div>	AO	File History - U.S. Patent No. 5,751,421					
<div style="font-size: 1.5em; margin-top: 10px;">R</div>	AP	J. Sorvaniemi et al., Using Partial Least Squares Regression and Multiplicative Scatter Correction of FT-NIR Data Evaluation of Wheat Flours, 1993, pp 251-258					
EXAMINER: W. D. Jones				DATE CONSIDERED: 2/5/04			
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	AA						
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	AC						
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
↓	AH	Suming Chen et al., "Neural Network Analysis of Sugar Content in Fruit Juice", 07/18-21/99, pp. Title page thru 12					
↓	AI	Renfu Lu et al., "Determination of Sugar Content and Firmness of Apples Using Near-Infrared Diffuse Reflectance", 07/9-12, 00, pp. Title page thru 16					
↓	AJ	K. J. Kaffka et al., "Attempts to Determine Oil, Protein, Water and Fiber Content in Sunflower Seeds by the NIR Technique", 1983, pp117-129					
↓	AK	Essex E. Finney, Jr. et al., "Determination of Moisture in Corn Kernels by Near-Infrared Transmittance Measurements", 1978, pp 581-584					
↓	AL	Wang-Sheng Li et al., "Determination of Rough Rice Quality by a Portable Near-Infrared Spectroscopy", 1997, (5) pages					
↓	AM	D. T. Lamb et al., "Moisture Determination in Single Soybean Seeds by Near-Infrared Transmittance", 1991, pp 2123-2129					
↓	AN	P. C. Williams et al., "Influence of Temperature on Estimation of Protein and Moisture in Wheat by Near-Infrared Reflectance", 1982, pp473-477					
↓	AO	D. Wang et al., "Effect of Wheat Kernel Size and Orientation on Reflectance Spectra and Single Kernel Color Classification", 1997, pp 1-34					
↓	AP	S. R. Delwiche, "Measurement of Single-Kernel Wheat Hardness Using Near-Infrared Transmittance", 1993, pp1431-1437					
EXAMINER <div style="font-family: cursive; font-size: 1.2em;">W. J. H. H.</div>				DATE CONSIDERED <div style="font-size: 1.2em;">2/5/04</div>			
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U.S. PATENT DOCUMENTS							
Examiner Initial		Document Number	Date	Name	Class	Sub-Class	Filing Date (if appropriate)
<div style="font-size: 2em;">↓</div>	AA	5,578,931	11/26/96	Russell et al.	324	536	
	AB	5,218,529	06/08/93	Meyer et al.	702	028	
	AC	5,844,086	12/01/98	Murray	530	377	
	AD	6,005,076	12/21/99	Murray	530	377	
	AE	5,351,338	09/27/94	Wigren	704	219	
	AF	5,986,749	11/16/99	Wu et al.	356	073.1	
	AG	4,649,281	03/10/87	Schmitt et al.	250	574	
	AH	4,448,790	05/15/84	Sarkki et al.	426	052	
	AI	5,410,021	04/25/95	Kampen	530	372	
	AJ	5,472,511	12/05/95	Rayas et al.	127	067	
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
<div style="font-size: 2em;">↓</div>	AK	M. R. Campbell et al., "Whole Grain Amylose Analysis in Maize Using Near-Infrared Transmittance Spectroscopy", 1997, pp300-303					
	AL	Stermer et al., "Infrared Reflectance Spectroscopy for Estimation of Moisture of Whole Grain", 1977, pp345-351					
	AM	F. E. Dowell et al., "Automated Single Wheat Kernel Quality Measurement Using Near-Infrared Reflectance", 1997, pp 1,3,5,7, and 9					
	AN	B. G. Osborne, "Recent Progress in the Application of NIR to the Measurement of Quality Parameters in Flour", 1982, pp577-581					
	AO	J. S. Shenk, "How NIR Can Help in Measuring Forage Quality for Breeding and Utilization Programs", (3) pages					
AP	Gerard Downey, "Estimation of Moisture in Undried Wheat and Barley by Near Reflectance", 1985, pp951-958						
EXAMINER Whinnie Sh Lin				DATE CONSIDERED 2/5/04			
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<div style="font-size: 1.5em;">↓</div>	AA	4,836,017	06/06/89	Bozek	073	152.42	
	AB	5,755,672	05/26/98	Arai et al.	600	547	
	AC	3,886,331	05/27/75	Schierer	356	308	
	AD	5,317,524	05/31/94	Das et al.	702	134	
	AE	5,442,438	08/15/95	Batchelder et al.	356	301	
	AF	5,689,333	11/18/97	Batchelder et al.	356	301	
	AG	3,876,881	04/08/75	Bohlen	250	361.C	
	AH	5,130,158	07/14/92	Otsubo et al.	426	622	
	AI	5,173,079	12/22/92	Gerrish	460	007	
	AJ						
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<div style="font-size: 1.5em;">↓</div>	AK	Doninique Bertrand et al., "Application of Principal Component Analysis to the Prediction of Lucerne Forage Protein Content and <i>in vitro</i> Dry Matter Digestibility by NIR Spectroscopy", 1987, pp299-307					
	AL	Shuso Kawamura et al., "Determining Undried Rough Rice Constituent Content Using Near-Infrared Transmission Spectroscopy", 1997, pp cover, 1,3,5, and 7					
	AM	Holger M. Jaenisch et al., "Instrumentation to Measure the Near-IR Spectrum of Small Fruits", 1990, pp162-166					
	AN	Paul Geladi et al., "Partial Least-Squares Regression: A Tutorial", 1985, pp1-17					
	AO	Constantinos Goutis, "Second-Derivative Functional Regression with Applications to Near Infra-Red Spectroscopy", 1998, pp103-114					
	AP	Milling Feed and Fertiliser, "FMBRA takes the Grind out of Measuring Moisture", pp 34-35					
EXAMINER Winnie Lu Lu				DATE CONSIDERED 2/5/04			
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	AD	5,617,511	04/01/97	Bigus	375	26	
	AE	5,697,373	12/16/97	Richards-Kortum et al.	128	664	
	AF	5,559,034	09/24/96	Roberts et al.	435	320.1	
	AG	5,605,577	02/25/97	Rayas et al.	127	67	
	AH	4,108,847	08/22/78	Creinin et al.	260	112 G	
↓	AI	6,001,412	12/14/99	Huber et al.	426	656	
Ker	AJ	3,578,866	05/18/71	Kohler et al.	356	74	
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Per	AK	John S. Shenk et al., "Near Infrared Reflectance Analysis with Single-and Multiproduct Calibrations", 1993, pp582-584					
	AL	D. T. Williams et al., "The Derivative Spectrometer", 1970, pp 1597-1605					
	AM	F. E. Barton et al., "The Calibration of NIR Reflectance Spectrometer for the Determination of Diverse Compositional Parameters", 1988, pp 768-773					
	AN	R. J. Barnes et al.; "Standard Normal Variate Transformation and De-Trending of Near-Infrared Diffuse Reflectance Spectra", 1989, pp772-777					
	AO	Kurt C. Lawrence et al., "Sensing Wheat Moisture Content Independent of Density", 1997, pp Cover Page, 1,3,5,7,9,11,13 and 15					
↓	AP	Abraham Savitzky et al., "Smoothing and Differentiation of Data by Simplified Least Squares Procedures", 1964; pp1627-1639					
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	AB	3,776,642	12/04/73	Anson et al.	356	188	
	AC	5,478,748	12/26/95	Akins et al.	436	86	
	AD	4,866,644	09/12/89	Shenk et al.	364	571.02	
✓	AE	5,448,069	09/05/95	Tobler et al.	250	339.01	
Per	AF	3,861,788	01/21/75	Webster	350	315	
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Per	AG	WO 99/40419	08/12/99				
Per	AH	O 388 082	09/19/90	EP			
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Per	AI	Principle Introduction to PROTRONICS, (8) pages					
	AJ	"Comments on the Savitzky-Golay Convolution Method for Least-Squares Fit Smoothing and Differentiation of Digital Data", 1978, pp1383-1386					
	AK	Gerald S. Birth et al., "Interaction Between Light and Natural Materials: Laboratory Demonstrations", (4) Cover Pages, and pp1-36					
	AL	Gerald S. Birth, "How Light Interacts with Foods", (6) pages					
	AM	H. Martens et al., "Partial Least Squares Regression: A New Two-Stage NIR Calibration Method", 1982, pp607-647					
✓ Per	AN	Tormod Næs et al., "Comparison of Multivariate Calibration and Discriminant Analysis in Evaluating NIR Spectroscopy for Determination of Meat Tenderness", 1996, pp350-357					
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